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EXAMINER
CHERRY, STEPHEN J

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 05/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/576,442	JACKSON ET AL.	
	Examiner	Art Unit	
	Stephen J. Cherry	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-29,31-35,38 and 44-50* is/are rejected.

7)☐ Claim(s) *30* is/are objected to.

8)☐ Claim(s) *1-20,36,37 and 39-43* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

Claims 1-20, 36, 37, and 39-43 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 7.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 21-22, 27-28, 31, 34-35, 38, 44-47, and 49-50 are rejected under 35 U.S.C. 102(b) as being anticipated by DE 4041723 to Thiedig.

The claims describe, as disclosed by Thiedig:

> 21. A method for calibrating a machine measuring system that has first measuring device and a second measuring device, the method comprising the steps of:

mounting a first calibration target ('723, 5) in a predetermined relationship to the first measuring device ('723, 2) of the machine measuring system, wherein the first measuring device is configured to measure a relative position between the first measuring device and a first object ('723, 1);

mounting a third measuring device in a predetermined relationship to the second measuring device of the machine measuring system ('723, 6 and 7, in a second structure 2), wherein the second measuring device is configured to measure a relative position between the second measuring device and a second object ('723, 3); and

using a computer, determining a relative position between the first object and the second object based on a position of the first calibration target relative to the third measuring device, the relative position between the first measuring device and the first object, and the relative position between the second measuring device and the second object (723, fig. 1, and col. 5, lines 20-27, describing the use of multiple devices, 2, specification describes calculation which would be performed by computer).

22. A method as recited in Claim 21, including selecting each measuring device from a group consisting of

an image-capturing device configured to capture images of an object ('723, 4, 6, 7, 8);

27. A method as recited in Claim 21, further comprising the step of computing the relative measuring-device position value of the machine measuring system based on:
a first relative measuring-device position value that represents a position of the second measuring device relative to the third measuring device, and a second relative measuring-device target position value that represents a position of the first measuring device relative to the first calibration target. ('723, fig. 2, d_2, and col. 5, lines 20-27)

28. A method as recited in Claim 27, wherein the second relative measuring-device target position value is computed based on a position of the first calibration target relative to a second calibration target ('723, fig. 1, targets 5, fig. 2, and col. 5, lines 20-27).

31. A method as recited in Claim 2 1, further comprising the step of computing the relative measuring-device position value of the machine measuring system while the first measuring device and the second measuring device of the machine measuring system are measuring targets of objects under measurement ('723, fig. 1-2, and col. 5, lines 20-27, describing longer distances by simultaneously measuring the distance

between a device 1, multiple devices 2, and a device 3 using targets 5 through combining measurements).

34. A method for calibrating a machine measuring system that has a first measuring device and a second measuring device, the method comprising the steps of;

mounting a first calibration target ('723, 5) in a predetermined relationship to the first measuring device of the machine measuring system ('723, 2);

mounting a third measuring device in a predetermined relationship to the second measuring device of the machine measuring system ('723, 6 and 7 in a second device 2); and

using a computer, calculating a relative measuring-device position value of the machine measuring system representing the position of the first measuring device relative to the second measuring device based on a position of the first calibration target relative to the third measuring device, wherein each of the first measuring device, the second measuring device, and the third measuring device is an image-capturing device that performs measurements of objects by capturing images ('723, fig. 1-2, and col. 5, lines 20-27).

35. A method as recited in Claim 21, wherein any of the first measuring device, the
second measuring device, and the third measuring device is an image-capturing
device that performs measurements of objects by capturing images ('723, 4,6,7, 8).

38. A method for measuring the relative positions of a first device relative to a second device, the method comprising the steps of mounting near the first device a calibration device in which the position of the calibration device relative to the first device is predetermined; mounting near the second device a calibration target in which the position of the calibration target relative to the second device is predetermined; measuring the position of the calibration device relative to the calibration target; accessing computer-stored data related to the position of the calibration device relative to the first device and the position of the calibration target relative to the second device; and using a computer, determining the position of the first device relative to the second device based on: the position of the calibration device relative to the first device; the position of the calibration target relative to the second device; and the position of the calibration device relative to the calibration target (723, fig. 1, and col. 5,

lines 20-27, describing the use of multiple devices, 2, specification describes calculation which would be performed by computer).

44. The method of claim 21, wherein the first calibration target is an optical target and the third measurement device is an optical measurement device ('723, 4-8).

45. The method of claim 38, wherein the calibration target is an optical target, and the calibration device is an optical measurement device ('723, 4-8).

46. A method for calibrating a machine measuring system that has a first measuring device and a second measuring device, wherein a first calibration device is in a first known positional relationship relative to the first measuring device ('723, fig. 2, d_2 in a device 2), and a second calibration device is in a second known positional relationship relative to the second measuring device ('723, fig. 2, d_2 in a second device 2), the first calibration device and the second calibration device are used to measure a relative position of the first calibration device relative to the second calibration device ('723, col. 5, lines 20-27 describe multiple devices 2 measuring distances between each other), the method comprising the machine-implemented steps of:

receiving a signal representing a relative position between the first calibration device and the second calibration device, wherein the relative position between the first calibration device and the second calibration device is measured by the first calibration device and the second calibration device ('723, fig. 1, signal in cables 9);

accessing data representing the first known positional relationship and the second known positional relationship ('723, col. 4, line 1 to col. 5, line 19); and

calculating a relative position between the first measuring device and the second measuring device based on the signal representing the relative position between the first calibration device and the second calibration device, the first known positional relationship and the second known positional relationship ('723, fig. 1-2, and col. 5, lines 20-27).

47. A method as recited in claim 46, wherein the first measuring device, the second measuring device, the first calibration device or the second calibration device are selected from a group consisting of: an image-capturing device ('723, 4-8).

49. A method as recited in claim 46, wherein each of the first measuring device, the second measuring device, and the first calibration device is an

image-capturing device that performs measurements of objects by capturing images ('723, 4-8).

50. A method for calibrating a machine measuring system that has a first measuring device and a second measuring device, wherein a first calibration device is in a first known positional relationship relative to the first measuring device, and a second calibration device is in a second known positional relationship relative to the second measuring device, the first calibration device and the second calibration device are used to measure a relative position of the first calibration device relative to the second calibration device ('723, fig. 1, with an additional sensor 2, as described at col. 5, lines 20-27), the method comprising the machine-implemented steps of periodically receiving a signal representing a relative position between the first calibration device and the second calibration device ('723, fig. 1, signal in cables 9), wherein the relative position between the first calibration device and the second calibration device is measured by the first calibration device and the second calibration device ('723, fig. 2 indicates measured distances T);

accessing data representing the first known positional relationship and the second known positional relationship ('723 fig. 2, d_2); and

calculating a relative position between the first measuring device and the second measuring device based on the signal representing the relative

position between the first calibration device and the second calibration device, the first known positional relationship and the second known positional relationship ('723, fig. 1-2, and col. 5, lines 20-27).

Claims 46 and 48 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,531,030 to Dale.

The claims describe, as disclosed by Dale:

46. A method for calibrating a machine measuring system that has a first measuring device ('030, 10) and a second measuring device ('030, 12), wherein a first calibration device ('030, 24, 42) is in a first known positional relationship relative to the first measuring device, and a second calibration device ('030, 40, 48) is in a second known positional relationship relative to the second measuring device, the first calibration device and the second calibration device are used to measure a relative position of the first calibration device relative to the second calibration device ('030, col. 3, line 45, to col. 4, line 33), the method comprising the machine-implemented steps of:

receiving a signal representing a relative position between the first calibration device and the second calibration device, wherein the relative position between the first calibration device and the second calibration device is measured by the first calibration device and the second calibration device ('030, col. 3, line 45, to col. 4, line 33);

accessing data representing the first known positional relationship and the second known positional relationship ('030, col. 3, lines 49-55, and col. 4, lines 7-24); and

calculating a relative position between the first measuring device and the second measuring device based on the signal representing the relative position between the first calibration device and the second calibration device, the first known positional relationship and the second known positional relationship ('030, col. 4, lines 25-33).

48. A method as recited in claim 46, further including the steps of storing a value that represents the relative position between the first calibration device and the second calibration device as a calibration value; periodically receiving a signal representing a new value that represents the relative position between the first calibration device and the second calibration device; and raising an alert alarm in response to the calibration value differing from the new value beyond an acceptable amount ('030, col. 3, line 45, to col. 4, line 33, "prompt" to service technician).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 21-29, 31-33, 35 and 44 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,531,030 to Dale, in view of U.S. Patent 4,319,838 to Grossman et al.

Dale discloses features of the claims:

> 21. (Twice Amended) A method for calibrating a machine measuring system that has first measuring device and a second measuring device, the method comprising the steps of:
>
> mounting a first calibration target ('030, 24) in a predetermined relationship to the first measuring device ('030, 10) of the machine measuring system, wherein the first measuring device is configured to measure a relative position between the first measuring device and a first object ('030, 14);
>
> mounting a third measuring device in a predetermined relationship to the second measuring device of the machine measuring system (depicted in '030 12, second device 42, used in front to rear toe measurements, third device used to measure toe from 12 to 10 including 48), wherein the second measuring device is configured to measure a relative position between the second measuring device and a second object ('030, 16);

22. (Amended) A method as recited in Claim 21, including selecting each measuring device from a group consisting of

an image-capturing device configured to capture images of an object;

a gravity gauge configured to detect movement of one or more other measuring devices with respect to another measuring device or with respect to a fix point;

a string gauge configured to detect movement of one or more other measuring devices with respect to another measuring device or with respect to a fix point;

a light source located near one measuring device to direct a light beam at a detector ('030, fig. 1, 42).

23. A method as recited in Claim 2 1, including storing a value that represents the position of the first calibration target relative to the third measuring device as a calibration value; wherein the third measuring device periodically measures a new value that represents a new position of the first calibration target relative to the third measuring device; and

if the calibration value differs from the new value beyond an acceptable amount, then raising an alert alarm ('030, col. 4, line 22).

24. A method as recited in Claim 23, including applying the difference in the calibration value and the new value to update the relative measuring-device position value ('030, col. 4, line 4).

25. A method as recited in Claim 23 including, upon recognizing that the calibration value differs from the new value beyond an acceptable amount, recalculating the relative measuring-device position value ('030, col. 4, line 4).

26. A method as recited in Claim 21, including:
storing a value that represents the position of the first calibration target relative to the third measuring device as a calibration value;
periodically measuring a new value that represents the position of the first calibration target relative to the third measuring device; and
if the calibration value differs from the new value beyond an acceptable amount, then raising an alert alarm ('030, col. 4, line 4).

27. A method as recited in Claim 21, further comprising the step of computing the relative measuring-device position value of the machine measuring system based on:
a first relative measuring-device position value that represents a position of the second measuring device relative to the third measuring device,

and a second relative measuring-device target position value that represents a position of the first measuring device relative to the first calibration target ('030, col. 3, line 35 to col. 4, line 24).

28. A method as recited in Claim 27, wherein the second relative measuring-device target position value is computed based on a position of the first calibration target relative to a second calibration target ('030, col. 3, line 35 to col. 4, line 24).

29. A method as recited in Claim 28, wherein the position of the first calibration target relative to the second calibration target is obtained by using a fourth measuring device which provides information to calculate the position of the first calibration target relative to the second calibration target ('030, col. 4, line 7-24 describes a "known" angle between mirrors 40 and 46, it is the opinion of the angle that this angle could not be known unless measured by some angle measurement).

31. A method as recited in Claim 21, further comprising the step of computing the relative measuring-device position value of the machine measuring system while the first measuring device and the second measuring device of the machine measuring system are measuring

targets of objects under measurement ('030, col. 3, line 35 to col. 4, line 32).

32. A method as recited in Claim 21, further comprising the steps of computing a modified relative measuring-device position value of the machine measuring system while the first measuring device and the second measuring device of the machine measuring system are measuring targets of objects under measurement, and modifying measurements produced by measuring the targets of objects under measurement based on the modified relative measuring device position value of the machine measuring system ('030, col. 4, line 1-32, the modified positions are the automatically corrected values described).

33. A method as recited in Claim 32, wherein the step of modifying measurements produced by measuring the targets of objects under measurement based on the modified relative measuring-device position value of the machine measuring system is performed only when the modified relative measuring-device position value differs from the relative measuring-device position value by more than a predetermined value ('030, col. 3, line 63 to col. 4, line 21).

35. A method as recited in Claim 21, wherein any of the first measuring device, the second measuring device, and the third measuring device is an image-capturing device that performs measurements of objects by capturing images (030, col. 3, line 17).

44. The method of claim 21, wherein the first calibration target is an optical target ('030, 40 and 46) and the third measurement device is an optical measurement device ('030, 32).

Grossman further describes features not explicitly disclosed by Dale:

using a computer, determining a relative position between the first object and the second object based on a position of the first calibration target relative to the third measuring device, the relative position between the first measuring device and the first object, and the relative position between the second measuring device and the second object ('838, at the top of col. 9, "TRT", total rear toe, based on measured values including front toe).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the calibration invention disclosed by Dale in an alignment machine that uses the calibrated values to calculate rear toe, as disclosed by Grossman to allow alignment of vehicles rear tires, thereby reducing tire wear.

Allowable Subject Matter

Claim 30 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Cherry whose telephone number is (703) 305-0425. The examiner can normally be reached on M-F 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (703) 308-3126. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0719.

SJC
May 5, 2003

John Barlow
Supervisory Patent Examiner
Technology Center 2800